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A new species of genus *Cretognathus* (Coleoptera: Lucanidae) from Myanmar amber

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Abstract: A new species of stag beetle, *Cretognathus renqiangi* **sp. nov.**, from mid-Cretaceous Kachin amber of northern Myanmar is described. Photographic illustrations and morphological diagnostic characters of the new species are provided.

Keywords: Lucanidae, stag beetle in amber, taxonomy

缅甸琥珀白垩颚锹属一新种

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摘要：本文记述产自缅甸北部中白垩世克钦琥珀的锹甲一新种，仁强白垩颚锹 *Cretognathus renqiangi* **sp. nov.**，附该新种标本实拍图，并详述其形态鉴别特征。

关键词：锹甲亚科，锹甲虫珀，分类

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Introduction

The genus *Cretognathus* Yamamoto, 2023 currently contains only a single species, *Cretognathus minutissimus* Yamamoto, 2023, recovered from Hukawng Valley, Kachin State, northern Myanmar; unnamed horizon, mid-Cretaceous.

New species described herein is attributed to the tribe Ceratognathini Sharp, 1899 based on distinctive distribution of denticles along outer margin of protibia; it can be distinguished from the genus *Oncelytris* Li & Cai, 2023 due to lack of elytral tubercles, and is placed in the genus *Cretognathus*.

Material and methods

The amber specimen was recovered from Kachin State, Myanmar, and is dated to the Middle Cretaceous. The insect body is exceptionally well-preserved with exquisitely clear morphological details.

The amber piece was cut into a hexahedron and immersed in silicone oil to eliminate refraction. Observations and photographs were taken under a stereomicroscope. Images were stacked using Helicon Focus software.

CXY-Private Collection of Xi Yuan, Shaoyang, China.

Taxonomy

Genus *Cretognathus* Yamamoto, 2023 白垩颚锹属

Cretognathus renqiangi sp. nov. 仁强白垩颚锹

https://zoobank.org/7ED92892-7449-4824-81E3-5DF69FB29132

Figs 1–2

Type material. Holotype: Sex undetermined, Kachin State, Myanmar. Housed in CXY.

FIGURE 1. *Cretognathus renqiangi* **sp. nov.**: **A** right lateral view **B** right lateral view **C** ventral view. Scale bars = 1.0 mm.

Etymology. The specific epithet renqiangi is given in honour of Ren-Qiang Yuan, the author's father.

Description. Body 2.92 mm long. Length of particular parts (mm): head (0.42), pronotum (0.89), elytra (1.95); width (mm): head (0.78), pronotum (1.14), elytra (1.19).

Head (Figs 1A, 2A) ca. 1.6× as wide as long, dorsally densely finely punctate. Eye half head length; anterior eye margins fused to labrum. Labrum broadly semicircular, with small median depression likely from taphonomic deformation; posterior eye margins obscured. Antenna with slender scape, globose pedicel; antennomeres 3–7 small, 8–10 strongly inflated and broad (Figs 1C, 2B). Mandibles minute, not visible.

Pronotum (Figs 1A, B, 2B) 1.7× as wide as long, maximum width at midlength. Surface densely covered by small circular punctures, punctures concentrated anteriorly and laterally, sparser medially and posteriorly. Lateral pronotal margins finely undulate, edged with very narrow raised carinae; posterior margin M-undulate, confluent with elytra.

Scutellum (Fig. 1A) ligulate, surface bearing ⩾10 small punctures, punctures denser anteriorly, sparser posteriorly.

Elytra (Figs 1A, B) 1.7× as long as wide, widest at posterior third, overall subquadrate. Lateral surfaces weakly wrinkled due to compaction, slightly detached from amber matrix bilaterally without impairing morphological observation. Elytra devoid of tubercles; disc smooth, covered with small circular punctures. Punctures denser along margins, sparser medially, irregularly scattered but loosely aligned in several longitudinal parallel series.

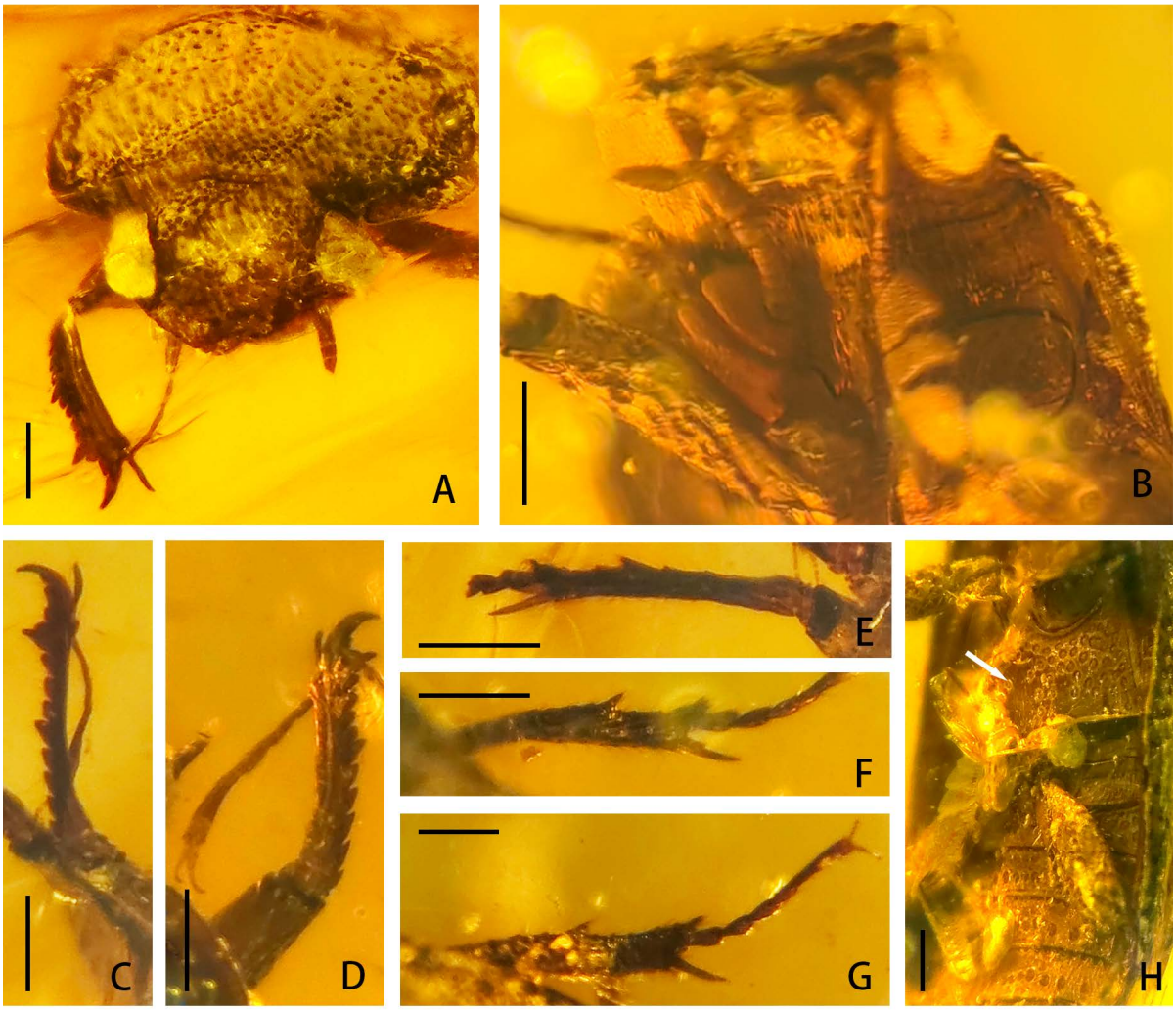

FIGURE 2. *Cretognathus renqiangi* **sp. nov.**: **A** dorsal view of head **B** ventral view of head **C** left foreleg **D** right foreleg **E** left midleg **F** right midleg **G** right hindleg **H** meso- and metathorax and abdomen. Scale bars = 0.2 mm.

*Meso- and metathora*x (Figs 1C, 2H). Metaventrite (Fig. 2H) medially flat, lacking median longitudinal sulcus (arrowed); lateral regions densely punctate with small circular punctures.

Abdomen (Figs 1C, 2H) with five ventrites. Ventrites 1–4 each with distinct transverse row of small circular punctures subapically; additional transverse punctate rows hidden at ventrite overlap zones. Ventrite 5 with ⩾10 irregularly scattered small punctures.

Legs (Figs 2C-G). Protibia outer margin armed with three prominent teeth: largest slender curved tooth at apex, medium straight tooth one-third tibial length subapically, small triangular tooth at tibial midpoint. Four to five minor denticles interspersed between primary teeth. Mesotibia and metatibia each with single large tooth at outer midmargin.

Genitalia not exposed.

Differential diagnosis. *C. renqiangi* **sp. nov.** can be readily separated from *C. minutissimus* by the following combination of characteristics:

C. renqiangi **sp. nov.** (length/width ratio = 2.45) possesses a more slender body compared with C. minutissimus (length/width ratio = 2.19);

C. renqiangi **sp. nov.** metaventrite medially flat, lacking a median longitudinal sulcus; metaventrite of *C. minutissimus* with a median longitudinal sulcus;

C. renqiangi **sp. nov.** bears small circular punctures arranged medially on the third ventrite, the distance from these punctures to the posterior margin of ventrite roughly equals the diameter of a single puncture. In contrast, small circular punctures on the third ventrite of *C. minutissimus* are positioned subbasally, and the distance to the ventrite posterior margin is distinctly smaller than the diameter of one puncture;

The antennomeres 8–10 of *C. renqiangi* **sp. nov.** account for 50% of the total antennal length, a proportion much higher than the 28% observed in *C. minutissimus*;

The ratio of elytral length to the combined length of head and pronotum in *C. renqiangi* **sp. nov.** is 1.49, greater than the ratio of 1.38 in *C. minutissimus*.

Remarks. The sex of *C. renqiangi* **sp. nov.** and *C. minutissimus* cannot be determined at present. For small-bodied genera within the tribe Ceratognathini, namely genus *Fujiceratognathus* Yamamoto, 2026 and genus *Neoceratognathus* Nikolajev, 1998, sexual dimorphism is extremely subtle. For large-bodied genera of the tribe Ceratognathini, including genus *Ceratognathus* Westwood, 1838, genus *Hilophyllus* Paulsen & Mondaca, 2006 and genus *Mitophyllus* Parry, 1843, sexual differences follow a consistent pattern: males exhibit a slightly lower ratio of elytral length to total body length (excluding mandibles), a higher proportion of antennomeres 8–10 relative to total antennal length, and a greater body length/width ratio compared with females. The morphological disparities between *C. renqiangi* **sp. nov.** and *C. minutissimus* do not match the sexual variation pattern characteristic of the tribe Ceratognathini. Accordingly, the morphological distinctions separating these two forms are interpreted as interspecific differences between two distinct species, rather than intraspecific sexual dimorphism within a single species.

C. renqiangi is highly similar to the second unnamed taxon documented by Yamamoto (2023). Although severe structural deformation and insufficient morphological details of this unnamed specimen prevent a definite conspecific judgement with *C. renqiangi*, it can be confirmed that both forms belong to the genus *Cretognathus*.

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Photo Gallery

Dorcus katsurai Ikeda, 2000
Xuefeng Mountains, Hunan
photograph by Xi Yuan [袁熙]